

REMARKS

The Applicants thank the Examiner for the thorough examination of the application. The specification has been amended to correct minor errors. No new matter is believed to be added to the application by way of this amendment.

Summary of Substance of Interview

The Examiner is thanked for graciously conducting an Interview with Applicants' representative on July 30, 2004. During the Interview, potential claim amendments to clarify the essence of the invention were discussed. The patentability of the pending claims over the prior art was also discussed.

By the end of the Interview, an agreement was not reached. At the end of the Interview, the Examiner prepared an Interview Summary that appears to accurately reflect the substance of the Interview.

Status of the Claims

Claims 1, 4-6, 8-14 and 16-22 are pending in the application. Claims 17-22 have been withdrawn from consideration by the Examiner. Claims 2, 3, 7 and 15 have been cancelled. Claim 1 has been amended to clarify the language and to incorporate the subject matter of cancelled claims 7 and 15. The claims have also been

amended to improve their language and to correspond with amended claim 1. Claims 8 and 10 have also been amended to not depend on upon a cancelled claims.

Objection Under 35 U.S.C. § 112, First Paragraph

The Examiner objects to the specification as being unclear and failing to disclose the mode under 35 U.S.C. § 112, first paragraph.

The specification discusses features 11 and 12 in Fig. 1 as "thermostats." However, Applicants respectfully note that these features 11 and 12 in Fig. 1 would better be termed "thermal reservoirs." This is clear from the examples in the specification where these features 11 and 12 were described. Further, original claim 15 (now incorporated into claim 1) sets forth that these features 11 and 12 can be "circulating heaters and coolers, heating and cooling blocks and slush baths."

Also, the specification refers to "conducting means" (See, e.g., the specification at page 4, lines 5, 7 and 26). However, this phrase would be better said to be "thermal conducting means." However, the meaning from the context of the specification and drawings is clear.

As a result, the specification is clear and would permit a person having ordinary skill in the art to practice the best mode of the invention.

Claim Objections

Claims 1, 4 and 12 are objected to as containing informalities. The Examiner's comments have been considered. Amended claims 1, 4, and 12 are free from informalities.

Rejection Under 35 U.S.C. § 112, Second Paragraph

Claims 1-16 are rejected under 35 U.S.C. § 112, second paragraph, as being indefinite. Applicants respectfully traverse.

In the Office Action, the Examiner asserts that claim 1 recites a "first temperature control means" and "a second temperature control means." However, claim 1 has been instantly amended to better set forth these limitations as being "temperature means." These temperature means have been additionally defined by incorporating the subject matter of claim 15 which sets forth that the temperature means can be circulating heaters and coolers, heating and cooling blocks or slush baths.

As a result, the claims as amended are clear, definite and have full antecedent basis. This rejection is overcome and withdrawal thereof is respectfully requested.

Rejection Under 35 U.S.C. § 103(a) Over Swinehart

Claims 1-16 are rejected under 35 U.S.C. § 103(a) over Swinehart (USP 4,055,457). Applicants respectfully traverse.

The Present Invention and Its Advantages

The present invention pertains to a device for concentrating biological or aqueous samples by microcrystallization. The technology of the invention is based upon exploiting a temperature gradient between 2 thermal reservoirs. Since the solutions are aqueous, the crystallization has a reference point determined by the freezing point of order, which is 0°C.

The invention finds a typical embodiment in instant claim 1:

1. A device for concentrating a plurality of samples comprising:

 a first temperature means having a plurality of containers for said plurality of samples;

 a second complimentary temperature means having a plurality of thermal conducting means comprising a plurality of wires which are adapted to be inserted in respective samples in said plurality of container means; and

 insulating means for insulating said first temperature means from said second temperature means such that an amount of heat from said plurality of samples is dissipated through said plurality of thermal conducting means,

 wherein said first and second temperature means are individually selected from circulating heaters and coolers, heating and cooling blocks or slush baths.

Swinehart pertains to a furnace for growing absorption-free alkali metal halide single crystals. Swinehart fails to disclose or suggest a technology suitable for the microcrystallization of biological or aqueous samples.

A schematic cross-sectional diagram of a mechanical assembly, likely a pump or valve. The assembly consists of a main body 10 with a base 11 and a top flange 14. A central shaft 15 passes through the body. At the top, a reservoir 40 is connected to the shaft. Inside the body, there is a piston or valve assembly 20 with a stem 30 and a seal 32. The assembly is surrounded by a fluid medium 12. The diagram is labeled with various numbers: 10, 11, 12, 13, 14, 15, 16, 17, 20, 30, 31, 32, 33, and 40.

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The furnace of Swinehart includes a firebrick wall on which is mounted a radiation baffle 17. Thermocouples 15 and 16 are mounted in the furnace. A crucible 30 with a lid 33 is used to grow a metal halide single crystal. The halogen reservoir 40 includes a tube that connects to the crucible 30.

In contrast, the invention utilizes wires 20 in the thermal well 11, and to the wire ends 22 penetrate the wells 40 to provide a thermal gradient to induce crystallization. That is, in the invention the heat-conducting member is inside the chamber itself.

In comparison, Swinehart operates at very high temperatures and by necessity must perform heat exchange externally. Swinehart at column 5, lines 30-36 describes this necessity saying:

A metal thin finger extending up from a gear rack shelf of an elevator mechanism makes contact with the tip of the crucible cone so that, with the rest of the metal crucible support being insulated from the crucible itself by a layer of alundum, heat is drawn away from the very tip of the crucible first, thus starting the crystallization at that point.

As a result, Swinehart is fundamentally different from the invention in both function and structure.

Further, Swinehart is from the fundadmentally different field of high temperature furnaces. A person having ordinary skill would have no motivation to turn to Swinehart when seeking solutions for

the microcrystallization of biological or aqueous samples at 0°C or lower. Swinehart is therefore non-analogous art.

Further, the Examiner is basing her rejection based upon a single reference. To establish a *prima facie* case of obviousness, "the prior art reference (or references when combined) must teach or suggest all of the claim limitations." MPEP § 2143. In addition, if a reference needs to be modified to achieve the claimed invention "there must be a showing of a suggestion or motivation to modify the teachings of that reference to the claimed invention in order to support the obviousness conclusion." Sibia Neurosciences Inc. v. Cadus Pharmaceutical Corp., 55 USPQ2d 1927 (Fed. Cir. 2000).

In this case, Swinehart fails to disclosure or suggest two thermal reservoirs (temperature means) set forth in claim 1 especially "wherein said first and second temperature means are individually selected from circulating heaters and coolers, heating and cooling blocks or slush blocks."

As a result, a person having ordinary skill in the art would not be motivated by Swinehart to produce the invention as embodied in claim 1. A *prima facie* case of obviousness has not been made. Claims depending upon claim 1 are patentable for at least the above reasons. This rejection is overcome and withdrawal thereof is respectfully requested.

Prior Art

The prior art made of record and not utilized by the Examiner indicates a status of the conventional art that the invention supercedes. Additional remarks are accordingly not necessary.

Information Disclosure Statements

The Applicants thank the Examiner for considering the Information Disclosure Statements filed May 11, 2001 and August 6, 2001 and for making the initialed PTO-1449 forms of record in the application in the Office Action mailed August 3, 2004. However, in the initialed PTO-1449 form filed May 11, 2001, the Examiner has crossed out the reference A1-19 739120 (date 1999-03-11, country DE). The Examiner is therefore respectfully requested to make of record the reason for crossing out this reference.

Foreign Priority

The Examiner has acknowledged foreign priority in the Office Action mailed August 3, 2004.

Drawings

The Examiner has accepted the drawings in the Office Action mailed August 3, 2004.

Conclusion

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact Robert E. Goozner (Reg. No. 42,593) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.


Pursuant to the provisions of 37 C.F.R. §§ 1.17 and 1.136(a), the Applicants hereby petition for an extension of two (2) months to September 30, 2004 in which to file a reply to the Office Action. The required fee of \$210.00 is enclosed herewith.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

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